

BC

C-1

1ST AND 2ND EDITIONS

PROCESSING AND PROPERTIES INDEX

3RD AND 4TH EDITIONS

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

EDITION NUMBER

EDITION DATE

EDITION DATE

TEST AND ANAL. CODE(S)		PROCESSING AND PROPERTY INDEX	
1		7	
<p>CA</p> <p>A colorimetric method for the determination of small amounts of arsenic in talc. S. T. Volkov. <i>Mineral. Zh.</i> 12, No. 7, 48(1937); <i>Khim. Referat. Zh.</i> 1, No. 16, 172(1938). Take 20 g. talc, boil for 30 min. with 60 ml. HNO₃, evaporate to half vol., add hot water and filter. Evaporate filtrate on a sand bath with 25 ml. concd. H₂SO₄. Cool after Sb₂ has been given off for 10 min., add 0.5 g. hydrazine sulfate, and heat until Sb₂ has been given off for 20 min. Cool the soln. and transfer it with water into a 250-ml. flask. Transfer 50 ml. of the obtained soln. into a Sanger-Black app., heat to 35°, add 30 drops of a 25% SnCl₂ soln., 2 ml. of a 25% Fe(SO₄)₂ (NH₄)₂SO₄ soln., and 3 g. metallic Zn. A piece of 6 As. Al wire is not recommended instead of metallic Zn because it gives a blurred color. The height of the color strips depends on the amt. and on the shape of Zn used. The presence of 0.5 mg. of Sb does not interfere with the As detn. In large amts. Sb gives a color about 100 times weaker than that of As. Expts. on the colorimetric detn. of As with Molybdenum did not give accurate results.</p> <p>W. R. Hoon</p>			
<p>ASR-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>GROUPS</p>			

(Handwritten mark)

7

A rapid method for determining calcium fluoride in fluorapatite. V. I. Lister and R. E. Hoffman, *Laboratory Notes*, 8, 643-7 (1939); *Chem. Refractor*, 1940, No. 2, 50 (N). The proposed method is a combination of the methods of Tananayev (*J. C. A.*, 23, 44) and of Lundell, Hoffman and Bright with certain modifications. Ca not bound to F is extd. with 10% AcOH. CaF_2 is dissolved in an AlCl_3 soln. For complete soln. a 4-6-fold amt. of AlCl_3 (as compared with CaF_2) and either slow boiling on a sand bath for 30-40 min. or boiling on a water bath for not less than 1 hr. are required. A 4-6-fold amt. of AcOH (as compared with AlCl_3) is added to bind Al in the complex and to ppt. Ca. For complete pptn. of Ca some NH₃ is added to a slightly acid reaction (to yellow color with methyl orange in a hot soln.). A 0.25% correction is made to the calcd. amt. of CaF_2 for the soln. of CaF_2 in AcOH (for a 0.25-g. sample). The results for Ca were too high by up to 4% for alk. solns. and too low by 1% for strongly acid solns. The proposed method was verified with the CaF_2 reagent on CaCl_2 obtained from pure calcite, on fluorapatite concentrates whose compn. was detd. by a complete analysis and on transparent fluorspar. The results agreed within 0.1-0.3% with those obtained by the complete analysis of the samples. The results obtained by the Lundell-Hoffman-Bright method were low by 0.9%, owing to the pptn. of Ca in the presence of considerable AcOH. W. R. H.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

SUBJECTS										CLASSIFICATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Methods for taking average samples of ore and non-metallic minerals under laboratory conditions. S. I. Volkov and I. V. Timokov. *Trans. Inst. Econ. Mineral.*

(U. S. S. R.) No. 60, 3-35 (in English 37) (1964). Paper based on screen and chem. analysis of limestone, talc and Fe ore showed that the degree of fineness of grinding a sample for analysis depends on the complexity of mineral constituents and on the degree to which these constituents differ in their phys. properties, such as hardness, brittleness, etc. Exptl. evidence is in favor of a grain size, in most cases, of 150 mesh (0.104 mm.). This conclusion is in agreement with the tables of Richards and Brinman and with the values obtained from the formulas of Glagolev and Benedetti-Pichler. Of the 2 methods of crushing tested, by quartering and by means of the Jones sampler, the latter is preferable. Seventeen references.

S. I. Madorosky

A 50.55 A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS		PROCESSING AND PROPERTIES INDEX		3RD AND 4TH ORDERS	
BC		B-I-3			
<p>Determination of selenium and tellurium in sulphide ores. S. T. NOLANOV (Zavod. Lab., 1936, 8, 1438-1439).—15 g. of ore are dissolved in 90 ml. of HNO_3. N oxides are eliminated by boiling, and the solution is diluted and filtered. 45 ml. of H_2SO_4 are added to the filtrate + washings, the solution is heated until evolution of SO_2 has lasted 10 min., and then diluted to 200 ml. and boiled with 20 ml. of HCl. Should a ppt. form (PbSO_4, AgCl), the solution is filtered, the filtrate + washings are diluted to 200 ml., and excess of 50% SnCl_2 is added to the boiling solution, which is filtered after 4-5 hr. at 100°. The washed ppt. is heated with 10 ml. of H_2SO_4 and 3 drops of HNO_3. 25 ml. of H_2O are added, and the solution is filtered. 35 ml. of HCl and 10 ml. of 5% $\text{N}_2\text{H}_4 \cdot \text{H}_2\text{SO}_4$ are added to the filtrate, followed by H_2O to 100 ml., the solution is boiled, and filtered the next day, and Se determined colorimetrically in the ppt. The filtrate is diluted to 200 ml., heated to boiling, 4 ml. of 80% SnCl_2 are added, and the ppt. of Te is collected after 4 hr. at 100°. R. T.</p>					
A 50-51 A METALLURGICAL LITERATURE CLASSIFICATION					
SIGNATURE		SIGNATURE		SIGNATURE	
INITIALS		INITIALS		INITIALS	
DATE		DATE		DATE	

VOLKOV, S.T.

[Detecting selenium and tellurium in ores and concentrates containing gold.] Opredelenie selena i tellura v rudakh i kontsentratakh, sodershashchikh soloto. Moskva, Gosudarstvennoe izd-vo geologicheskoi literatury, 1945. 11 p. (Metody issledovaniia poleznykh iskopayemykh. vyp.7) (MLRA 8:7)
(Gold ores) (Selenium) (Tellurium)

WELSH, S.V.; KOROLIKHIN, V.V.

Dissolving renal calculi. The possibility of using trilon B as a chemical solvent; experimental study. Urologiia no.5:38-43 '62.
(MIRA 15:12)

1. Iz Gor'kovskoy gorodskoy klinicheskoy bol'nitsy No.5 (glavnyy vrach N.I. Pyatnitskiy).
(CALCULI, URINARY) (ACETIC ACID)

VOLKOV, S.V.

Resection of the pelvis and pelvic-ureteral segment in the
surgery of hydronephrosis. Urologia no.1:27-31'63.
(MIRA 16:7)

1. Iz Gor'kovskoy gorodskoy klinicheskoy bol'nitsy no.5 (glavnyy
vrach - zasluzhennyy vrach RSFSR N.I. Pyatnitskiy)
(KIDNEYS—SURGERY) (URETERS—SURGERY)

MARKOV, B.F.; VOLKOV, S.V.

Thermodynamic properties of zinc chloride in fused mixtures
of $\text{ZnCl}_2 - \text{KCl}$ and $\text{ZnCl}_2 - \text{RbCl}$. Ukr. khim. zhur. 30 no.6:
545-553 '64. (MIRA 18:5)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

MARKOV, B.F.; VOLKOV, S.V.

Molar volume of fused mixtures of zinc chloride with alkali
metal chlorides. Ukr. khim. zhur. 29 no.9:945-946 '63.
(MIRA 17:4)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

MARKOV, B.F.; VOLKOV, S.V.

Thermodynamic properties of zinc chloride in melts with
cesium chloride. Ukr. khim. zhur. 30 no.9:906-912 '64.
(MIRA 17:10)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

MARKOV, B.F.; VOLKOV, S.V.

Isobaric potential of the formation of fused zinc chloride, Ukr.khim.
zhur. 29 no.5:511-515 '63. (MIRA 16:9)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

VOLKOV, S.V.; MARGOLIN, M.A.

Extraction of urinary calculi. Urologiia 25 no. 4:49-52 J1-Ag '60.

(MIRA 14:1)

(CALCULI, URINARY)

VOLKOV, S. V.

"Cultivation of Pines in the Usmansk Pine Forest, Their Conditions, Their Growth Progress and Their Productivity." Cand Agr Sci, Voronezh Forestry Inst, Voronezh, 1953. (RZhBiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR
Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

43026

3/188/62/000/006/015/016
B125/B104

AUTHORS: Volkov, S. V., Kachinskiy, V.N.

TITLE: The anisotropy of the sign of the Hall effect in tin

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6. 1962, 80 - 81

TEXT: The minimum effective magnetic field strength required for a change in sign of the Hall emf is determined at 4.2°K using a method established by V. N. Kachinskiy (DAN SSSR, 135, 4, 818, 1960). Two cylindrical sample single crystals (Sn-14 and Sn-13) with similar orientations were drawn from a melt. The Hall emf is positive at $\psi = \pm 90^\circ$ and at a field strength of at least $5 \cdot 10^7$ oe. In all the other directions it is negative at any field strength. The angle ψ is counted from the projection of the [001] axis onto the plane of rotation of the magnetic field. There are 2 figures.

ASSOCIATION: Kafedra fiziki nizkikh temperatur (Department of Low Temperature Physics)

Card 1/2

The anisotropy of the ...

SUBMITTED: April 4, 1962

S/188/62/000/006/015/016
B125/B104

Card 2/2

USSR/Forestry - Forest Cultivation:

K-5

Abs Jour : Ref Zhur - Biol., No 9, 1958, 39108

Author : Volkov, S.V.

Inst : Voronezh Silvicultural Institute.

Title : The Characteristics of the Growth of Usmanskiy Pine Forests.

Orig Pub : Nauchn. zap. Voronezhsk. lesotekhn. in-ta, 1956, 15, 129-138.

Abstract : The tables pertaining to the course of the growth of pure pines in the Usmanskiy pine forest are compared with the general tables of prof. Tyurin and of Vargus-de-Bedenar for the Kuybyshev region as well as those prepared by D.I. Vuyevskiy for the forest of BSSR. The comparison between evaluation elements of Usmanskiy' pine forest cultivatings with those of Byelorussia showed

Card 1/2

VOLKOV, S. V.

Subtotal resection of the bladder with regeneration of its walls
on a rubber prosthesis. Urologia no.3:46-49 '61.

(MIRA 14:12)

1. Iz Gorikovskoy gorodskoy klinicheskoy bol'nitsy No.5 (glavnyy
vrach N. L. Pyatnitskiy)

(BLADDER--SURGERY)

VOLKOV, S.V.; LIMAREVA, L.A.; SHIROKOV, V.I.

Ultrahigh-frequency phase fluorimeter. Izv. AN SSSR, Ser. fiz. 27
no. 4:558-561 Ap '63. (MIRA 1614)
(Fluorimeter)

VOLKOV, S.V.; KACHINSKIY, V.N.

Anisotropy of the sign of the Hall effect in tin. Vest.Mosk.un.
Ser.3:Fiz.,astron. 17 no.6:80-81 N-D '62. (MIRA 15:12)

1. Kafedra fiziki nizkikh temperatur Moskovskogo universiteta.
(Hall effect) (Tin) (Magnetic fields)

POLYAKOV, A.L., inzh.; YELIZAROV, D.P., kand.tekhn.nauk; VOLKOV, S.V., inzh.

Stresses arising in the heating of a steam pipe from austenitic steel.
Teploenergetika 10. no.2:69-73 F '63. (MIRA 16:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i
mashinostroyeniya i Moskovskiy energeticheskiy institut.
(Steampipes) (Pipe, Steel)

MARKOV, B.F.; VOLKOV, S.V.

Thermodynamic properties of molten zinc chloride. System
 $\text{ZnCl}_2 - \text{LiCl}$. Ukr. khim. zhur. 30 no.4:341-347 '64.
(MIRA 17:6)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

L 24287-66 ENT(1)/ENT(m)/ENP(j) RM

ACC NR: AP6007002

SOURCE CODE: UR/0051/66/020/002/0303/0307

AUTHOR: Zhmyreva, I. A.; Kolobkov, V. P.; Volkov, S. V.

ORG: none

TITLE: Triplet-triplet absorption spectra of solid solutions of certain organic compounds

SOURCE: Optika i spektroskopiya, v. 20, no. 2, 1966, 303-307

TOPIC TAGS: absorption spectrum, solid solution, organic solvent, nonmetallic organic derivative, organic amide, fluorescence quenching, halogenated organic compound

ABSTRACT: To obtain more data on the mechanism and kinetics of formation of metastable states of organic molecules, the authors determined at low temperature the spectra of the triplet-triplet absorption of alcohol solutions of several amino-benzoic acids and anthracene derivatives, and investigated by means of triplet-triplet absorption the action of specific fluorescence quenchers on the population of the metastable state. The measurements were based on a comparison, at fixed wavelengths, of the transmission of samples under additional intense excitation capable of creating a sufficiently large population of the metastable states, with the transmission in the absence of excitation. The apparatus is described in detail. The triplet-triplet absorption method was also used to study the action of heavy halogens on the population of the metastable states. In the case of anthracene, a substantial increase in the triplet-triplet absorption density in the presence of bromides was dis-

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UDC: 535.343

L 24287-66

ACC NR: AP6007002

covered. It was demonstrated by the same token that the quenching of fluorescence in anthracene derivatives by halides is governed by an enhancement of the transmission of excited molecules into the metastable state. The authors thank A. S. Cherkasov and V. I. Shirokov for supplying the substances and for valuable advice on questions of technique. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 30Dec64/ ORIG REF: 002/ OTH REF: 007

Card 2/2

VOLKOVA, P.; VOLKOV, S.Ya., mekhanik

Recent developments in the incubation of goose eggs. Ptitsevod-
stvo 9 no.10:27-28 0 '59. (MIRA 13:2)

1. Direktor Rzesknenskoj inkubatorno-ptitsevodcheskoy stantsii
(for Volkova).
(Incubation) (Goose)

VOLKOV, S.Ye. (Moskva); SAMARIN, A.M. (Moskva)

Effect of the silicon reduction of steel on the process of its
desulfuration. Izv. AN SSSR. Otd. tekhn. nauk. Met. i topl. no.3:
20-26 My-Je '62. (MIRA 15:6)
(Steel—Metallurgy) (Desulfuration)

L 16989-63

EWPC/WT(m)/BDS AFFT/ASD Pq-4 WJ/JD
S/020/63/149/005/014/018

63

AUTHOR: Volkov, S. Ye., Mchedlishvili, V. A., and Corresponding Member of
~~the Academy of Sciences USSR~~ A. M. Samarin

TITLE: Wettability of corundum and quartz glass by iron-manganese compounds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 5, 1963, 1131-1133

TEXT: By determining the adhesion of molten ferromagnetic alloys to corundum and quartz glass, the authors attempted to evaluate the interphase tension at the interface of the investigated systems. The determinations were performed at 1,550°C by the sessile drop method in a helium atmosphere, using iron containing 0.001-0.002% C, 0.002% S, 0.002% N, and traces of Si, Cu, and Mn, and electrolytic manganese containing not more than 0.1% impurities. It was established that the surface tension of molten iron decreases with increasing content of manganese. The adhesion of iron-manganese melts to corundum is lower than to quartz glass, owing to the greater difference in the values of interphase tension at the metal-oxide boundary, i.e., $\delta_{1,2}(\text{SiO}_2) \ll \delta_{1,2}(\text{Al}_2\text{O}_3)$. With increasing content of manganese the adhesion of molten iron to corundum increases owing to the preferential adsorption of manganese from the metallic solution to the surface of the oxide. As the content of manganese increases, the adhesion of iron-manganese melts to quartz glass at first increases but later decreases. There is 1 figure.

Card 1/1

SUBMITTED: December 26, 1962

VOLKOV, S.Ye. (Moskva); SAMARIN, A.M. (Moskva)

Effect of the deoxidation of steel by aluminum on the process
of its desulfuration. Izv. AN SSSR. Otd. tekhn. nauk. Met. i
gor. delo no.2:22-27 Mr-Ap '63. (MIRA 16:10)

VOLKOV, S. Ye.

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PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th,
Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii
(Physicochemical Bases of Steel Making; Transactions of the
Fifth Conference on the Physicochemical Bases of Steelmaking)
Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted.
3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni
A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy
of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg.
Tech. Ed.: V. V. Mikhaylova.

Card 1/16

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Physicochemical Bases of (Cont.)

SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

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Physicochemical Bases of (Cont.)

SOV/5411

Zaykov, S. T. Using Lime-Iron-Ore Briquettes for Processing Pig Iron in a Converter With Oxygen [Blast] 319

PART III. NONMETALLIC INCLUSIONS AND
THE PROPERTIES OF STEEL

Popel', S. I., and G. F. Konovalov. Removing High-Temperature Melting Inclusions From Rimmed Steel 325

Volkov, S. Ye., and A. M. Samarin. Effect of Deoxidation on the Desulfurization of Steel 331

Butakov, D. K. Effect of Hydrogen on the Separation of Sulfur in the Structure of the Cast Steel 337

Rostovtsev, S. T., D. I. Turkenich, V. I. Baptizanskiy, and K. S. Prosvirnin. Nonmetallic Oxide Inclusions in Rail Steel Made in a Converter 344
Card 12 /16

VOLKOV, S.Ye.; LINCHEVSKIY, B.V.; POLYAKOV, A.Yu.; SAMARIN, A.M.

Desulfuration of steel in vacuum induction furnaces. Stal'
25 no.2:129-132 F '65. (MIRA 18:3)

VOLKOV, S. Ye.

НЕМЕТАЛЛИЧЕСКИЕ ВКЛЮЧЕНИЯ СТАЛИ

С.М.Павлов Г.Ф.Косовский	Особенности включения стали из чугуна- вых включений
С.Е.Васильев Л.М.Сидоров	Влияние метода раскисления стали на содержание неметаллических включений в структуре литой стали.
Д.К.Воронов Л.М.Мельников	Влияние параметров на обескисление ста- ли в структуре литой стали.
С.Т.Ростовцев Д.М.Туровский	Особенности неметаллических включений в конвертерной рудной стали.
В.И.Богдановский Н.С.Прохоров	Влияние на неметаллические вклю- чения, содержащиеся в стали.
В.А.Уралов Ю.Т.Дуванский Дуванский	Влияние на неметаллические вклю- чения, содержащиеся в стали.
Ю.Т.Дуванский Дуванский	Влияние на неметаллические вклю- чения, содержащиеся в стали.
О.В.Давыдов Е.В.Круглов	Особенности включения стали в процес- се обескисления стали.
А.И.Кочетков	Разработка и внедрение новых техно- логических процессов производства стали.
С.Г.Васильев П.М.Давыдов	Влияние на неметаллические вклю- чения, содержащиеся в стали.
В.П.Карпов П.М.Давыдов	Влияние на неметаллические вклю- чения, содержащиеся в стали.

report submitted for the 5th Physical Chemical
Conference on Steel Production, Moscow 30 Jun 1959.

VOLKOV, S.Ye. (Moskva); LINCHEVSKIY, E.V. (Moskva); POLYAKOV, A.Yu.
(Moskva); SAMARIN, A.M. (Moskva)

Using solid slag reagents for the desulfuration of metal
in vacuum induction furnaces. Izv. AN SSSR. Met. i gor.
delo no.4:47-51 J1-Ag '64. (MIRA 17:9)

L 11335-65 EPA(s)-2/ENT(m)/EPP(n)-2/EWA(d)/ENP(t)/ENP(b) Pt-10/Pt-1 MJW/
 JD/WW/JG S/0279/64/000/004/0047/0051
 ACCESSION NR: AP4043916

AUTHOR: Volkov, S. Ye. (Moscow); Litchevskiy, B. V. (Moscow);
 Polyakov, A. Yu. (Moscow); Samarin, A. H. (Moscow) B

TITLE: Use of solid slag reagents for desulfurizing metal in vacuum induction furnaces

SOURCE: AN SSSR. Izv. Metallurgiya i gornoye delo, no. 4, 1964, 47-51

TOPIC TAGS: 1Kh18N9, stainless steel, ShKh15, ball bearing, steel, steel vacuum induction melting, metal desulfurization, steel desulfurization, stainless steel desulfurization, ball bearing, steel desulfurization 6

ABSTRACT: Experiments have been conducted to determine the effectiveness of solid slag-forming desulfurizers, such as lime, a mixture of fluorspar and alumina, lime with fluorspar, or lime with fluorspar and quartz sand, in vacuum induction melting of 1Kh18N9 stainless steel and ShKh15 ball-bearing steel. Best results were obtained with a lime + 10% fluorspar mixture, which had a grain size of 2--5 mm and

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ACCESSION NR: AP4043916

was used in an amount of 3% of the charge weight and placed on the bottom of the furnace crucible. The sulfur content of the stainless steel dropped from 0.0055--0.030% to 0.002--0.003%. The desulfurization occurs in the first 8--10 min; longer holding causes no additional drop. A fresh mixture must be used for each heat. In the case of ball-bearing steel, prolonged holding of liquid metal in contact with a slag mixture had a beneficial effect. With holding for 35 min the sulfur content was reduced from an original 0.01% to 0.0015--0.0035%. The use of solid desulfurizers had no adverse effect on the melting process nor on the economic indices of the process. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 21Nov63

ATD PRESS: 3100

ENCL: 00

SUB CODE: MM

NO REF SOV: 003

OTHER: 000

Card 2/2

VOLKOV, S.Ye.(Moskva); MCHEDLISHVILI, V.A. (Moskva); SAMARIN, A.M. (Moskva)

Wettability of corundum and silica glass by iron-silicon melts.

Izv. AN SSSR. Otd. tekhn. nauk. Met. i topl. no. 5: 69-73 8-0 '62.

(MIRA 15:10)

(Liquid metals)

(Surface tension)

VOLKOV, S.Ye.; MCHEDLISHVILI, V.A.; SAMARIN, A.M.

Wettability of corundum and quartz glass by iron-manganese melts. Dokl. AN SSSR 149 no.5:1131-1133 Ap '63. (MIR 16:5)

1. Chlen-korrespondent AN SSSR (for S. Samarin).
(Corundum) (Quartz) (Iron-manganese alloys)

POLYAKOV, A. Yu. (Moskva); VILKOV, S. Ye. (Moskva); KAMEN, V.I. (Moskva)
MOLDAVENIY, O.D. (Moskva)---

Studying the conditions of liquid steel desulfuration with the
help of CaF_2 -base slags. Izv. AN SSSR Met. i gor. delo no.3:
52-57 My-Je 64 (MIRA 17s7)

L 39470-65 EPA(a)-2/ENT(m)/EPF(n)-2/I/ENP(t)/ENP(b) PL-10/Pu-4 IJP(c)
 ACCESSION NR: AP4047868 JD/WM/JG S/0279/64/000/005/0003/0009

AUTHOR: Shtazhn, V. Ye. (Moscow); Volkov, S. Ye. (Moscow); Poljakov, A. Yu. (Moscow);
Samarin, A. M. (Moscow)

TITLE: High purity iron production in an induction vacuum furnace

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 5, 1964, 3-9

TOPIC TAGS: vacuum melting, fluorspar, lime, alumina, carbon concentration,
gas pressure, slag, manganese, silicon, high purity iron, induction vacuum fur-
nace, induction heating

ABSTRACT: A method of melting commercially pure iron was developed in a lab-
 oratory vacuum furnace with a 5 kg magnesite crucible. The slag forming mix-
 ture consisted of burned lime and fluorspar, however, a lime, fluorspar and
 alumina mixture was also tested. The best results were obtained with 90% CaO,
 10% CaF₂ and 2 to 5 mm particles (see fig. 1). The optimal quantity for the slag
 forming mixture was 3% of the weight of the metal portion in the charge. Bottom
 charging is recommended. The process of desulfurization was found to be com-
 pleted within 1.0 to 15 minutes after the melting of the metal occurs. The drastic
 decline in the carbon concentration during the coexistence of the liquid and the

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ACCESSION NR: AP4047868

3

solid phase is followed by a gradual decrease in carbon. The amount of Si and Mn decreases from 0.10-0.25 to 0.03 to 0.07% while the metal is in the molten state. Slag does not cause the contamination of metal in the molten state. Slag does not cause the contamination of metal with slag particles and furnace pressures under 1 mm Hg prevent oxidation. Care must be taken to avoid a rise of the oxygen content above the 0.004 to 0.005% range. The nonmetallic inclusions were investigated by N. N. Smirnova under the supervision of Yu. T. Lukashevich-Duvanova, Doctor of technical sciences. Orig. art. has: 7 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 12Mar64

ENCL: 01

SUB CODE: MM

NR REF SOV: 005

OTHER: 002

Card 2/3

VOLKOV, S.Ye. (Moskva); LEVENETS, N.P. (Moskva); SAMARIN, A.M. (Moskva)

Combined effect of phosphorus and oxygen on the surface tension
of liquid iron. Izv. AN SSSR, Met. no.1:71-77 Ja-F '65. (MIRA 13:5)

AUTHOR: Volkov, T. SOV-2-58-7-9/14

TITLE: A New Statistical Accounting Procedure in Industry and Construction (Novaya statisticheskaya otchetnost' po promyshlennosti i stroitel'stvu)

PERIODICAL: Vestnik statistiki, 1958, Nr 7, pp 74 - 79 (USSR)

ABSTRACT: In connection with the reorganization of the industrial and construction administration, and the centralization of statistical operations, the TsSU has approved new forms of abbreviated statistical accounting to be used in sovnarkhozes, in ministries and departments of allied and Union republics. Until now approximately 1,700 forms were used in interdepartmental statistical accounting among which were 140 forms for industrial production. The new order foresees only 12 statistical accounting forms for all industrial branches. The TsSU of the USSR has widely distributed an "Album of New Forms for Statistical Accounting in Industry and Con-

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SOV-2-58-7-9/14

A New Statistical Accounting Procedure in Industry and Construction

struction". The author describes the introduction of the new accounting procedure in various parts of the USSR and mentions that the organization still has many serious deficiencies.

Card 2/2

AUTHOR: Volkov, T. SOV/2-58-12-7/19

TITLE: An Important Task of Statistical Institutions (Vazhnaya zadacha statisticheskikh organov)

PERIODICAL: Vestnik statistiki, 1958, Nr 12, pp 43 - 47 (USSR)

ABSTRACT: The securing of trustworthy accounting data from industrial enterprises and organizations has always been at the center of Soviet Government statistics. A check carried out in 1958, uncovered serious deficiencies in the accounting procedure of a certain number of enterprises. Some were registering wrong production figures to cover-up the actual situation; other enterprises were systematically manipulating the monthly production figures, thus misrepresenting the actual fulfilment of the plan, etc. A constant active care for the trustworthiness of the statistical accounting still remains the most important of all tasks of the Boards of Statistics and Inspectorates of the USSR TsSU.

Card 1/1

VOLKOV, T. F.

"The Stability of a Plasma Cylinder in an External Magnetic Field." (Work - 1953);
pp. 144-149.

"The Physics of Plasmas; Problems of Controlled Thermonuclear Reactions." Vol. II.
1958, published by Inst. Atomic Energy, Acad. Sci. USSR.
resp. ed. M. A. Leontovich, editorial work V. I. Kogan.■

Available in Library.

VOLKOV, T. F.

"The Problems of the Decomposition of an Arbitrary Shock in a Continuous Medium."
(Work carried out in 1956); pp. 148-152.

"Stationary Distribution of the Density of the Plasma in an Electro-Magnetic Field" (Work carried out in 1957 and supplemented for preparation for publication in 1958); pp/ 336-345.

"The Physics of Plasmas; Problems of Controlled Thermonuclear Reactions: Vol. III. 1958, published by Inst. Atomic Energy, Acad. Sci. USSR.
resp. ed. M. A. Leontovich, editorial work V. I. Kogan.

Available in Library.

VOLKOV, T. F.

"The Influence of a High Frequency Electromagnetic Field on the Vibrations of a Plasma." (Work carried out in 1958); pp. 98-108.

"The Vibrations and Stability of the Surface Plasma in the Field of a Traveling Electromagnetic Wave." (Work carried out in 1958); pp. 109-115.

"The Physics of Plasmas; Problems of Controlled Thermonuclear Reactions." Vol. IV. 1958, published by Inst. Atomic Energy, Acad. Sci. USSR.
resp. ed. M. A. Leontovich, editorial work V. I. Kogan.

Available in Library.

Volkov, T. F.
OSOVETS, S. M., SACHDEYEV, R. Z., TRUBNIKOV, B. A., SHAFRANOV, V. D., VOLKOV, T. F.,
RUDAKOV, L. I.

"Interaction Between Alternating Electromagnetic Fields and High-Temperature Plasma."

x paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

SOV/56-37-2-14/56

21(7)

AUTHOR:

Volkov, T. P.

TITLE:

On Ionic Oscillations in a Plasma

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 37, Nr 2(8), pp 422-426 (USSR)

ABSTRACT:

In a previous paper (Ref 1) the author investigated the influence of a high-frequency electromagnetic field on plasma oscillations in hydrodynamic approximation; in the present paper the same problem is dealt with in kinetic approximation, it being assumed that the extension of the plasma is sufficiently great, so that collisions may be neglected. The following problem is set: A monochromatic electromagnetic wave of arbitrary amplitude is assumed to be propagated in a homogeneous plasma. If plasma density is disturbed by any random action, the electromagnetic field is reflected by places of greater density and accumulates at places of smaller density. This effect is of interest if the characteristic dimension of the disturbance is of the same order of magnitude as the electromagnetic wave length. The accumulation of the electromagnetic field leads to an interaction with the plasma oscillations, whereas the phase

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On Ionic Oscillations in a Plasma

SOV/56-37-2-14/56

velocity of the plasma waves becomes a function of the electromagnetic field amplitude. Under certain conditions this process leads to an instability, i.e. the disturbances extend. Mathematically the following onedimensional problem is dealt with: the equation describing ionic and electronic motion is set up, and in the first part of the paper the system consisting of equations of motion and of Maxwell equations is solved. The following part is devoted to the investigation of the dispersion law; it is derived and the possible mechanisms of the appearance of instabilities are discussed. For the damping decrement of the plasma oscillations an explicit formula is given. The author finally thanks Academician M. A. Leontovich for discussions. There are 8 references, 7 of which are Soviet.

SUBMITTED: March 11, 1959

Card 2/2

S/057/60/030/05/05/014
B012/B056

AUTHOR: Volkov, T. F.

TITLE: The Stability of the Plasma Cylinder in a High-frequency Magnetic Field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 5,
pp. 497 - 503

TEXT: In a number of papers (Refs. 1-7) it was suggested to use electromagnetic high-frequency fields for the production of equilibrium plasma configurations. The expression "high-frequency field" is to be understood in these papers as meaning that the particles moving with thermal velocity do not have time enough, during one period of field variation to move by a distance that corresponds to the dimensions of the system. Here, the motion of the plasma with a considerably lower frequency than that of the external field is investigated. The stability criteria for a plasma cylinder in various quasi-steady magnetic high-frequency fields is discussed. First, the stability of the plasma cylinder in a magnetic field traveling along the z-axis is investigated, on which occasion the

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The Stability of the Plasma Cylinder in a
High-frequency Magnetic Field

S/057/60/030/05/05/014
B012/B056

dispersion equation (7) is obtained and explained for several special cases. It is shown that only disturbances, the wavelength of which is considerably greater than the radius of the plasma cylinder can be unstable. Exact analysis shows that an axially magnetic high-frequency external traveling field is able to warrant stability with respect to arbitrarily small disturbances of the plasma cylinder with a current flowing on the surface. The amplitude necessary for stability of the alternating magnetic field on the cylinder surface may be determined from the curves given in Fig. 1. These curves were obtained by means of a numerical computation from formula (7). Next, the stability of the plasma cylinder in a magnetic rotating field is investigated, and it is shown that a high-frequency magnetic field with azimuthal rotation does not produce stability. Academician M. A. Leontovich discussed this paper with the author, and A. Ye. Bozhanov carried out the numerical computations. There are 2 figures and 11 references: 8 Soviet and 3 English.

SUBMITTED: December 4, 1959

Card 2/2

VOLKOV, T. F., Cand^d Phys-Math Sci -- "Problems ^f on the dynamics of plasma, interacting with rapidly changing electromagnetic fields." Mos, 1961 (Mos Eng^g-Phys Inst) (KL, 8-61, 226)

- 11 -

10-2000

27179
S/057/61/031/009/019/019
B104/B102

26.2331

AUTHOR: Volkov, T. F.

TITLE: Effect of a constant magnetic field on the stability of
a homogeneous plasma in the field of a traveling electro-
magnetic wave

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 9, 1961, 1149-1151

TEXT: The author generalizes results of his previous papers (Sb. "Fizika plazmy i problema upravlyayemykh termoyadernykh reaktsiy", 4, 98. Izd. AN SSSR, M., 1958; ZhETF, 37, 422, 1959). There, he had studied the effect of an h-f electromagnetic field on plasma oscillations when there exists a spatial constant, homogeneous magnetic field. The author starts from the system

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$$MN \frac{dv}{dt} = -\nabla p + \frac{1}{c} [\mathbf{j}, \mathbf{H} + \mathbf{H}_0],$$

$$\text{rot } \mathbf{H} = \frac{4\pi}{c} \mathbf{j} + \frac{1}{c} \frac{\partial \mathbf{E}}{\partial t},$$

$$\text{rot } \mathbf{E} = -\frac{1}{c} \frac{\partial \mathbf{H}}{\partial t},$$

$$\mathbf{j} = en\mathbf{u},$$

$$m \frac{d\mathbf{u}}{dt} = e\mathbf{E} + \frac{e}{c} [\mathbf{u}, \mathbf{H}_0],$$

$$\frac{\partial N}{\partial t} + \text{div } N\mathbf{v} = 0, \quad p = nT.$$

(1),

where M is the ion mass, m the electron mass, \vec{H}_0 the homogeneous constant magnetic field, \vec{H} the magnetic field of the electromagnetic waves. Temperature is assumed to be constant, and all quantities depending on z only. The plasma is assumed to be at rest in state of equilibrium, having the density N_0 . The effect of the h-f field on ions is neglected, and the

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traveling waves have circular polarization. The electromagnetic field is assumed to be a harmonic function of time. The frequency is chosen such that the electromagnetic waves penetrate the plasma. In equilibrium, the time average of pressure of the electromagnetic field does not depend on the space coordinates. Under such conditions, system (1) is solved by successive approximation. $E_x \pm iE_y = \Phi_\alpha$ is introduced, and

$\Phi_\alpha(0) = E_\alpha^{(0)} (1 \pm i) \exp(i\kappa_\alpha z)$ is obtained for the steady state, where
 $\kappa_\alpha^0 = \frac{\Omega^2}{c^2} (1 - \mu^2 / (1 \pm \nu))$ and $2\pi/\kappa_\alpha$ is the wavelength of the traveling wave. X

The correction to the electric field for ion displacement is obtained with

$$\Phi_\alpha^{(1)} = \frac{\Omega^2 \omega_0^2 (1 \pm 1)}{\kappa_\alpha^0 c^2 (1 \pm \nu)} E_\alpha^{(0)} \int_0^z n^{(1)}(z') \exp(i\kappa_\alpha z') \sin \kappa_\alpha (z - z') dz'.$$

Thus the electric currents and magnetic fields can be determined in first approximation with the aid of (1). By the same method, the dispersion

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equation $\omega^2 = k^2 \left(v^2 - \sum_{\alpha=1}^2 \frac{1}{\epsilon_{\alpha}(k^2 - 4\kappa_{\alpha}^2)} \right)$ is obtained. When studying the

effects of ordinary and extraordinary waves on the plasma, this equation shows that $\omega^2 < 0$, if $4\kappa_{\alpha}^2 < k^2 < 4\kappa_{\alpha}^2 + 1/\epsilon_{\alpha}^2 v^2$; $v^2 = T/M$. This fact is the \times so-called resonance instability of the plasma which had been studied in the preliminary papers. It is connected with the tendency of the plasma towards disintegrating into individual "clusters" if the length of the disturbance has the same order of magnitude as the length of the electromagnetic wave. The existence of a high-frequency field in a plasma thus leads to a build up of plasma oscillations and to a turbulence in the plasma. The application of a magnetic field intensifies this effect in some cases. There are 2 Soviet references.

SUBMITTED: March 24, 1961

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L 2348-66	EWT(1)/ETC/EPF(n)-2/ENG(m)/EPA(w)-2	IJP(c)	AT
ACCESSION NR: AT5021029		UR/3041/64/000/004/0003/0019	
AUTHOR: Volkov, T. F. <i>44.65</i>			
TITLE: The hydrodynamic description of a <u>highly rarefied plasma</u> <i>21.44.5</i>			
SOURCE: Voprosy teorii plazmy, no. 4, 1964, 3-19			
TOPIC TAGS: rarefied plasma, plasma dynamics, hydrodynamic theory, magnetohydrodynamics, mathematic physics, plasma magnetic field			
ABSTRACT: In this paper the hydrodynamic approximation to plasma dynamics is discussed from a fundamental point of view, i.e., the equations are derived and their validity under different conditions is discussed, but almost no specific problems (and no new ones at all) are treated. Starting from the kinetic equation with self-consistent electromagnetic field but no collision term, the author derives the hydrodynamic equations by introducing the average velocity and integrating out the residual velocity, once before and once after first multiplying through by the velocity. The first elimination gives the equation of motion and the second gives the equation of continuity. The stress tensor occurring in the equation of motion involves the second moments of the distribution function; an attempt to eliminate			
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L 2348-66

ACCESSION NR: AT5021029

the second moments introduces the third moments, etc. The hydrodynamic approximation consists in neglecting the third moments. If one assumes an isotropic stress tensor one obtains an equation of state with the adiabatic index $5/3$. Equations of state are also derived for the case of an axially symmetric stress tensor. The justification for treating the collision-free system as a continuous connected medium is found in the Coulomb forces, which are taken partly into account by the self-consistent field. The hydrodynamic model describes the thermal motions very poorly. The author is unable to give a universal criterion for the validity of the hydrodynamic approximation for the treatment of different specific plasma problems. Further discussion is limited specifically to a highly rarefied plasma in a strong magnetic field. The drift velocity is separated (this is equivalent to transforming to a reference system in which there is no longitudinal electric field) and the kinetic equation is expanded in powers of the reciprocal of the electron Larmor frequency. By assuming that the first order term in this expansion is a periodic function of the azimuth and averaging over the azimuth, a simplified kinetic equation is derived for the zeroth order term. This equation corresponds to the drift approximation. Hydrodynamic-type equations cannot be derived in the usual way directly from the drift approximation kinetic equation because of the difference between the motions of the particles and the motions of their guiding centers; it is necessary to reintroduce the first order term of the

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reciprocal Larmor frequency expansion. This is done, and after further operations there result the hydrodynamic-type equations for the electron motion that were first derived by H.Chew, M.Goldberger, and F.Lowe (cited in Russian translation: "Problemy sovremennoy fiziki", No.7, 139, 1957). These equations are shown to be equivalent to the magnetohydrodynamic equations for a perfectly conducting fluid with an anisotropic stress tensor. As an example of the application of these equations, small oscillations of a nonisothermal plasma are discussed in the final section of the paper. The discussion is conventional, employing the linearized equations for small perturbations and the corresponding dispersion equation. The diamagnetic instability of slow magnetic sound in a highly anisotropic plasma (L.I.Rudakov, *Dissertatsiya*, M., 1961) is demonstrated. Orig. art. has: 88 formulas.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: ME

NO REF SOV: 010

OTHER: 001

Card 3/3

VOLKOV, T.F.; KADOMTSEV, B.B.

Stabilization of a low-pressure plasma by a high-frequency
field. Atom. energ. 13 no.5:429-434 N '62. (MIRA 15:11)
(Magnetic fields)
(Plasma (ionized gases))

VOLKOV, T.F.

Effect of a constant magnetic field on the stability of a
homogeneous plasma in the field of a traveling electromagnetic
wave. Zhur. tekhn. fiz. 31 no.9:1149-1151 S '61.

(MIRA 14:8)

(Plasma (Ionized gases))
(Magnetic fields)

S/057/62/032/001/C05/018
B104/B138

AUTHOR: Volkov, T. F.

TITLE: Stability of a heavy conductive liquid confined by a rapidly alternating magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 1, 1962, 34-43

TEXT: The stability of a metal was studied in an electromagnetic crucible, and also the effect of finite conductivity upon it were examined. The study was restricted to the plane problem of an incompressible liquid. A metal layer of density ρ and height h is assumed to be in equilibrium with a traveling magnetic field. Interaction between the current flowing in the skin layer and the magnetic field creates the force. The magnetic field must move along the surface fast enough to prevent the metal from leaking out at points where $\vec{H} = 0$. The magnetic field is determined in the stationary state. The relation

$$\left. \begin{aligned} p^{(0)} &= \rho g (h - x) + \frac{\rho g h}{1 - e^{-2ax}} (e^{-2ax} - e^{-2bx}), \\ H_0^2 &= \frac{8\pi (\sigma^2 + b^2)}{b^2} \frac{\rho g h}{1 - e^{-2ax}}. \end{aligned} \right\} \quad (7)$$

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is obtained for the electric current and, by averaging pressure and magnetic field:

$b = -\frac{1}{2} \sqrt{-1 + (1 + s^2)^{1/2}}$, $a = s^2/2b$, $s = \lambda_r^2/2\lambda_{sk}^2$, λ_r is the spatial period of the magnetic field, and λ_{sk} is the depth of the skin layer.

Pressure drops to zero at both the upper and the lower limit. Magnetic field disturbances due to deformation of the surface are examined. A first approximation of the dispersion equation

$$\begin{aligned} \frac{\omega^2}{|k|g} = & -1 + \frac{2ah}{1 - e^{-2ah}} + \\ & + \frac{H_0^2}{16\pi\rho g} \sum_{(\pm)} \frac{(1|k| - \beta_{\pm})(\beta_{\pm}^2 - \gamma_{\pm}^2 - k^2) - 2\beta_{\pm}\gamma_{\pm}}{4\beta_{\pm}^2\gamma_{\pm}^2 + (\beta_{\pm}^2 - \gamma_{\pm}^2 - k^2)^2} \left[A_{\pm} - \frac{k_y^2}{k^2}(\alpha\beta_{\pm} + \delta\gamma_{\pm}) \right] + \\ & + \frac{2(1|k| - \beta_{\pm})\beta_{\pm}\gamma_{\pm} + (\beta_{\pm}^2 - \gamma_{\pm}^2 - k^2)\gamma_{\pm}}{4\beta_{\pm}^2\gamma_{\pm}^2 + (\beta_{\pm}^2 - \gamma_{\pm}^2 - k^2)^2} \left[B_{\pm} - \frac{k_y^2}{k^2}(\alpha\gamma_{\pm} - \delta\beta_{\pm}) \right] - \\ & - \frac{ik_y^2}{\rho g k^2} F_g|_{z=0} + \frac{ak^2}{\rho g} \end{aligned} \quad (14)$$

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is obtained with the aid of $p^{(0)}$ and $p^{(1)}$. This complex equation is discussed for the case of ideal conductivity. The stability of disturbances with wavelength less than the depth of the skin layer is next examined. The results are compared with experimental data of R. F. Zhezherin (Voprosy magnitnoy gidrodinamiki i dinamiki plazmy, 279, Izd. AN Latv. SSR, Riga, 1959), and an attempt is made to obtain plasma of stable configuration and finite conductivity by confining it with a quickly alternating magnetic field. The magnetic field must alternate at the highest possible supersonic velocity. The intensity of wave emission and its effect the whole system have not yet been studied in full detail. The entrainment time of the metal is: $t_h \sim t_\lambda h / \lambda_{sk}$, where t_λ is the time during which the skin layer is entrained. Viscosity will cause accelerated entrainment of the layer as a whole. Academician M. A. Leontovich and B. B. Kadomtsev are thanked for discussions. There are 8 references: 5 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: M. Kruskal, M. Schwarzschild. Proc. Roy. Soc., A223, 348, 1954; R. J. Tayler, Second United Nations International Conference on the Peaceful Uses of the Atomic Energy, P/33, USA, 1958; J. Berkowitz, H. Grad, H. Rubin. Second United Nations International Conference

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Stability of a heavy conductive ...

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B104/B138

on the Peaceful Uses of Atomic Energy, P/376, USA, 1958.

SUBMITTED: March 24, 1961

X

Card 4/4

SHALTYKO, L.G.; BARANOV, V.G.; VOLKOV, T.I.; LUTSENKO, V.V.;
FRENKEL', S.Ya.

Theory of heterophase polymerization. Part 2: Comparison
of molecular weight distributions of polymers obtained under
conditions of homophase and heterophase polymerization.
Vysokom. soed. 5 no.10:1527-1533 O '63. (MIRA 17:1)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR i
Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh
volokon.

ESKIN, V.Ye.; VOLKOV, T.I.

Light scattering and viscosity of poly -2,5-dichlorostyrene
solutions in dioxane. Vysokom.soed. 5 no.4:614-621 Ap '63.
(MIRA 16:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Styrene polymers--Optical properties) (Viscosity)

FRENKEL', S.Ya.; VOLKOV, T.I.; BARANOV, V.G.; SHALTYKO, L.G.

Polarization-optical method of studying structural phase transitions
in solutions and films. Vyskom. soed. 7 no.5:854-859 My '65.

(MIRA 18:9)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

BARANOV, V.G.; VOLKOV, T.I.; FRENKEL', S.Ya.

Interpretation of the scattering of polarized light by concentrated
solutions of polymer films. Vysokom. soed. 7 no.9:1565-1570
S '65. (MIRA 18:10)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.

L 60263-65 EPI(c)/EMP(j)/EWT(m)/T Pc-4/Pr-4 JAJ/RM

ACCESSION NR: AP5013060

UR/0190/65/007/005/0851/0859
678.01:53

AUTHORS: Frankel', S. Ya.; Volkov, T. I.; Muranov, V. G.; Shaltyko, L. G.

TITLE: Polarization optical method for studying structural transitions in polymeric solutions and films

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 5, 1965, 854-859

TOPIC TAGS: polymer, resin, molecular structure, polarized light, polypropylene, spherulite, fusion kinetics

ABSTRACT: A relatively simple method for studying structural transitions in polymers has been developed. It extends currently available methods based on electron microscopy, x-ray analysis, IR and radio spectroscopy. The new method is based on observation of samples and specimens in polarized light. The installation is shown in Fig. 1 on the Enclosure. The possibilities of the new method are illustrated on four examples: determination of the size of spherulites in polypropylene films, study of fusion kinetics in linear and branched chain polyethylene films, orientation of semicrystalline polyethylene film, and formation of colloids in aqueous solutions of Bombyx mori fibroin. It is suggested that the method should prove

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useful in the study of appearance and destruction of supermolecular structure in laminar capillary flow, the nature of transition states associated with critical opalescence, as well as in the determination of molecular weight and size of macromolecules. Orig. art. has: 4 graphs and 7 photographs.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy, AN SSSR (Institute of High-Molecular Compounds, AN SSSR)

SUBMITTED: 13Jul64

ENCL: 01

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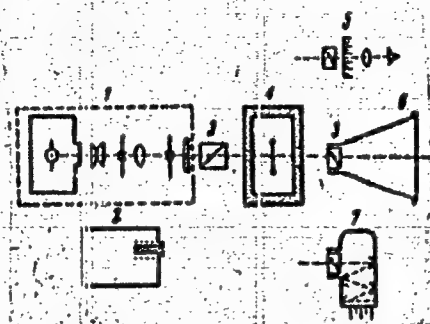


Fig. 1. Schematic of the installation. 1- light source (mercury lamp or laser 2 of type OKG-L-1); 3- polaroids; 4- thermostat; 5- microscope; 6- photogoniometer; 7- photomultiplier

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BARANOV, V.G.; VOLKOV, T.I.; FRANKEL', S.Ya.

Polarization-diffractometric study of the formation of a super-molecular structure in a solution of spiral polypeptide. Dokl. AN SSSR 162 no.4:836-838 Je '65. (MIRA 18:5)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR. Submitted November 24, 1964.

DYTNEFSKIY, Yu.I., kand.tekhn.nauk; KASATKIN, A.G., doktor tekhn.nauk;
KOCHERGIN, N.V.; VOIKOV, T.M.; NYAREP, E.Yu. [Naarep, E.]

Industrial application of turbogrid-type plates for
recovering natural gasoline by solar oil. Koks i khim.
no.16:40-43 '61. (MIRA 15:2)

1. Moskovskiy Ordena Lenina khimiko-tekhnologicheskii institut
im. D.I.Mendeleeva (Dytnefskiy, Kasatkin, Kochergin).
2. Slantse-
pererabatyvayushchiy kombinat, g. Kokhtla-Yarve (for Volkov).
3. Institut slantsev Estonskogo Soveta Narodnogo Khozyaystva
(for Nyarep).

(Gasoline)
(Plate towers)

VOLKOV, V.

Youth university "Sputnik." Prof.-tekh. obr. 22 no.6:15-16
Ju '65. (MIRA 18:7)

1. Pomoshchnik direktora po kul'turno-vospitatel'noy rabote
Moskovskogo professional'no-tekhnicheskogo uchilishcha No.7.

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PROCESSING AND PROPERTIES INDEX																			
<p>Basic principles of calculation of a closed gas cycle. Volkov. Khimvol 7, 14-18 (1988).—Math. treatment of circulation of gases under pressure in synthetic gas rooms. Chas. Mene</p>																			
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VOLKOV, V., kand.tekhn.nauk

Results of testing mechanical looseners. Rech. transp. 22 no.7:38-39
Jl '63. (MIRA 16:9)

(Dredging machinery--Testing)

SUVOROV, B.; VOLKOV, V., inzh.

Make wide use of economic analysis. Mor. flot 23 no.10:17 0 '63.
(MIRA 16:10)

1. Predsedatel' ekonomicheskogo soveta, zamestitel' nauchal'nika
Upravleniya Sredneaziatskogo parokhodstva po ekspluatatsii (for
Suvorov). 2. Chlen ekonomicheskogo soveta Upravleniya Sredneaziatskogo
parokhodstva po ekspluatatsii (for Volkov).
(Merchant marine)

VOLKOV, V.

We enliven the work of the inspection posts. Zhil.-kom. khoz.
11 no.12:13 D '61. (MIRA 16:11)

1. Sekretar' Moskovskogo oblastnogo komiteta professional'nogo
soyuza rabochikh mestnoy promyshlennosti i kommunal'nogo khozyay-
stva.

SLUDSKIY, Ye.; GORLOV, V.; RYABOV, K. (Leningrad); VOLKOV, V. (Kaliningrad)

Readers suggest. Za rul. 21 no.5:22 My '63. (MIRA 16:9)
(Motor vehicles—Technological innovations)

SVISTUNOV, A. (Chelyabinsk); VOLKOV, V. (Chelyabinsk)

In the Chelyabinsk Tractor Plant. Pozh.delo 9 no.7:20-21 J1
'63. (MIRA 16:10)

1. Vneshtatnyy korrespondent zhurnala "Pozharnoye delo" (for
Svistunov).

KOMSKIY, D. Priruchniki neobestiva: VOLKOV, V.; VOLCHKOV, V.;
GORSHKOV, A. KOPYTOV, Ye.; HALOV, V.; SHORIKOVA, T.;
STOLYAROV, Yu., red.

[Cybernetics made easy] Prostaya kibernetika. Moskva,
Molodaia gvardiia, 1965. 158 p. (MIRA 18:7)

1. Sverdlovskiy gosudarstvennyy pedagogicheskiy institut
(for all except Stolyarov).

VOLKOV, V., kand. tekhn. nauk; GROMOV, M.

Advantages of the operation of suction dredges by the fixed-spud method. Rech. transp. 24 no.7:35-36 '65.

(MIRA 18:8)

1. Gor'kovskiy institut inzhenerov vodnogo transporta (for Volkov). 2. Volzhskoye basseyenovoye upravleniye puti (for Gromov).

VOLKOV, V., podpolkovnik

Artillery gyrocompass training device. Voen. vest 43 no.1:114-115 Ja
'64. (MIRA 17:1)

VOLKOV, V.; TOLYUPA, V.; MIKHAYLICHENKO, I.

Automotive transportation in the construction of the Yenisey dam. Avt. transp. 41 no.6:6-8 Je '63. (MIRA 16:8)

1. Nachal'nik avtoupavleniya Krasnoyarskgesstroya (for Volkov). 2. Glavnyy inzh. avtoupavleniya Krasnoyarskgesstroya (for Tolyupa). 3. Zamestitel' nachal'nika avtoupavleniya Krasnoyarskgesstroya (for Mikhaylichenko).

VOLKOV, V.

A foreman sets the standards. Sots. trud 4 no.4:129-130 Ap '59.
(MIRA 12:6)

1. Nachal'nik otdela truda i zarabotnoy platy zavoda.
(Production standards)

VOLKOV, V., inzh.

Suitable engineering specifications are needed. Avt.dor. 22
no.6:20 Ja '59. (MIRA 12:9)
(Roads--Contracts and specifications)

VOLKOV, V.

Application of the new wage system for state farm managers and
specialists. Sots.trud no.3:142-146 Mr '58.

(MIRA 13:3)

(State farms) (Wages)

VOLKOV, V.; GOREVATYY, L.

Leave of workers and employees ("Annual leave of workers and employees
by L.IA. Gintsburg. Reviewed by V. Volkov, L. Gorevatyi). Sots. trud
no.8:151-155 Ag '58. (MIRA 11:9)
(Vacations, Employee) (Gintsburg, L.IA.)

DOLYA, V. (g.Rezekne); VLASOV, A. (g.Sverdlovsk); BULEGA, P. (s.Kurashevtsy,
Vinnitskaya obl.); MIRONOV, Ye. (sovkhoz Neyelovo, Smolenskaya obl.);
VOLKOV, V. (s.Kazanka, Nikolayevskoy oblasti); BRUDKIN, A.
(Khabarovskiy kray)

Suggestions of the wire broadcasting workers. Radio no.2:49-50
F '62. (MIRA 15:1)

(Wire broadcasting--Equipment and supplies)

VOLKOV, V., inzh.; LEV, K., inzh.

Useful editions. Log. prom. 18 no.2:50 P '58.
(Bibliography--Shoe industry)

(MIRA 11:2)

Volkov, V.

Gross, E. F., Raskin, A. I. and Volkov, V.
(Physical Inst., Leningrad State Univ.)

Acta Physicochim URSS 18, 430-2 - in English; J. Exptl. Theoret. Phys. (USSR)
13, 320-2 (1943)

Infrared vibrations of certain organic crystals in the range of wave lengths
of about one millimeter.

VOIKOV, V.

Eliminate shortcomings in the remuneration of machine operators of
machine-tractor stations. Sots. trud no.3:59-63 Mr '57. (MLRA 10:4)
(Wages)

VOLKOV, V.

Building poultry houses is the most important task of collective and state farms. Sel'stoi. 13 no.12:7-8 D '58.
(MIRA 12:1)

1. Nachal'nik Glavnogo upravleniya ptitsevodstva Ministerstva sel'skogo khozyaystva RSFSR.
(Poultry houses and equipment)

KLIMOV, S.; VOLKOV, V.

Redesign of the SOB-s drying and cleaning elevator tower. Muk.-
elev. prom. 28 no.2:8-10 F '62. (MIRA 15:3)

1. Tekhnicheskoye upravleniye Ministerstva zagotovok RSFSR.
(Grain elevators)

VOLKOV, V., inzh.

Working out methods of determining losses and gains in the propulsive speed of tow trains. Rech. transp. 20 no. 3:55 Mr '61.

(MIRA 14:5)

(Towing—Speed)